

Di-Jia Liu

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Professional Experience

- Diesel reforming reactor engineering and process development for fuel cell and low emission combustion engine
- Development of electrochemical CO removal technology for PEM fuel cell application.
- Development of electrode catalyst and membrane electrode assembly for PEM fuel cell.
- Development of a state-of-the-art ozone catalytic converter for Boeing 777 aircraft environmental control system
- Development of NO_x reduction catalyst system for lean-burn automotive combustion engine emission control
- Development of catalytic coating for CO and VOC remediation for microturbine power generator
- Development of in situ and real-time synchrotron x-ray absorption spectroscopic method for catalyst characterization under reaction conditions
- 6-Sigma Black Belt for industrial process development through statistical design and control principles

Professional Society Activities

- Member, American Chemical Society.
- Member, North American Catalysis Society.
- Member, Society of Automotive Engineering.
- President (1999) and Program Chair (1998) of Chicago Catalysis Club, a local branch of North American Catalysis Society.

Education

- Postdoctoral Research Associate, The University of California at Berkeley
- PhD, Physical Chemistry, The University of Chicago
- BS, Chemistry, Beijing University

Awards

- Honeywell Aerospace Technology Achievement Award 2001
- USA Today Quality Cup Award 2000
- AlliedSignal Corporative Technical Achievement Award 1998
- AlliedSignal Special Technical Recognition Award 1995
- Elizabeth R. Norton Prize, The University of Chicago 1986

Patents

- An electro-catalytic oxidation (ECO) device to remove CO from reformat for fuel cell application.
- Removing CO from reformat for fuel cell application using a regenerable CO adsorption/catalytic oxidation bed (ACO) device.
- Regeneration methods to remove carbon monoxide from reformat fuel using an adsorption/electro-catalytic oxidation (ECO) approach.
- A carbon monoxide removal device for proton exchange membrane fuel cell application using a hybrid adsorption and selective catalytic oxidation approach.
- Multiple layer electrode for improved performance.
- Emissions control in gas turbine generators.
- Method of preparing a catalyst layer over a metallic surface of a recuperator
- Environmental control system including ozone destroying catalytic converter having anodized and washcoat layer.
- Tubular catalytic aircraft precooler.
- Catalytic adsorption and oxidation based carbon monoxide sensor and detection method.